

NEW SPECIES OF *CASTIARINA* (COLEOPTERA: BUPRESTIDAE) AND REDESCRIPTIONS OF *C. DIVERSA* (KERREMANS) AND *C. ELDERI* (BLACKBURN)

by S. BARKER*

Summary

BARKER, S. (1990) New species of *Castiarina* (Coleoptera: Buprestidae) and redescrptions of *C. diversa* (Kerremans) and *C. elderi* (Blackburn). *Trans. R. Soc. S. Aust.* 114(4) 169-178, 30 November, 1990.

Castiarina diversa (Kerremans) 1900 is resurrected from synonymy and together with *C. elderi* (Blackburn) 1892 is redescrbed and illustrated. The following ten new species of *Castiarina* (*abditio* sp.nov., *aurantia* sp.nov., *creta* sp.nov., *daedalea* sp.nov., *galactica* sp.nov., *indigohumerosa* sp.nov., *indigoventricosa* sp.nov., *nota* sp.nov., *palliat*a sp.nov., *rediviva* sp.nov.) are described and illustrated.

KEY WORDS: New species, *Castiarina*, Coleoptera, Buprestidae.

Introduction

In her revision of the tribe Stigmoderini (Buprestidae), Gardner (1990) elevated the three major sub-divisions of *Stigmodera* to separate genera. Of the Australian genera, *Stigmodera* is closely allied to *Themognatha*, *Calodema* and *Metaxymorpha* while *Castiarina* stands alone. A series of *Castiarina* specimens collected in W.A. by Mr M. Powell, were compared with the male holotype of *C. elderi* (Blackburn). Although some specimens belonged in that species, the rest represented three separate taxa, one of which was *C. diversa* (Kerremans) clearly not a synonym of *C. elderi*. The other two are described and illustrated, together with another species in the *C. elderi* complex found in South Australia, and seven other species. *C. elderi* and *C. diversa* are redescrbed and illustrated.

Materials and Methods

Male genitalia were prepared and displayed by the method described by Barker (1987). All specimens were measured using a dissecting microscope with a 'bombsight' crosshair in the eyepiece and a circular micrometer attached to the stage for maximum accuracy. The measurements are presented as a mean and standard error. Abbreviations used in the text for museum and private collections following Watt (1979) are: BMNH British Museum (Natural History), London; RMBB Royal Museum Belgium, Brussels; SAMA South Australian Museum, Adelaide; NMVA National Museum of Victoria, Melbourne;

WAMA Western Australian Museum, Perth; WADA Department of Agriculture, South Perth; GBVA Mr G. G. Burns, Mornington; HDWA Mr H. Demarz, Wanneroo; MPWA Mr M. Powell, Melville; MHSA Mr T. M. S. Hanlon, Sydney; RMNA Mr. R. Mayo, Narara; ASSA Mr A. Sundholm, Sydney.

Castiarina elderi (Blackburn), 1892 FIGS 1F, 2A

Stigmodera elderi Blackburn, 1892: 36. Kerremans, 1903: 212 (*ederi* lapsus). Carter, 1916: 87, 90, 101; 1929: 244; 1931: 356. Obenberger, 1934: 701. Barker, 1979: 17; 1983: 154; 1986: 30.

Stigmodera diversa Kerremans, 1900: Carter, 1916: 87, 101 (new syn.); 1929: 294; 1931: 356. Obenberger, 1934: 702. Barker, 1979: 17; 1986: 30.

Holotype. ♂, Victoria Desert, Sept., Mr Helms, SAMA.

Colour. Head blue, basally dark blue with large yellow frontal spot. Antennae blue. Pronotum medially dark blue, laterally yellow. The shape of the central blue mark was described by Blackburn (1892 p.37) 'as resembling that of a bust of a human figure with the head and the arms truncated, the neck reaching to the front margin of the segment.' Scutellum blue. Elytra yellow with the following dark blue markings: narrow basal margin; pre-medial fascia not reaching margin, ends angled anteriorly 'resembling the shape of a boot on each side' (Blackburn 1892 p.37); broad post-medial fascia; apical mark. Fascia and apical mark connected along suture. Ventral surface yellow with dark blue sutures and edges of abdominal segments, S_4 , S_5 , S_6 with lateral dark blue spots on each side. Legs blue. Hairs silver.

Shape and sculpture. Head closely punctured, no median sulcus, very short muzzle. Antennae compressed, antennomeres: 1-4 obconic; 5-11 toothed. Pronotum closely punctured, narrow basal

* Department of Zoology, University of Adelaide, G.P.O. Box 498, Adelaide, S. Aust. 5001

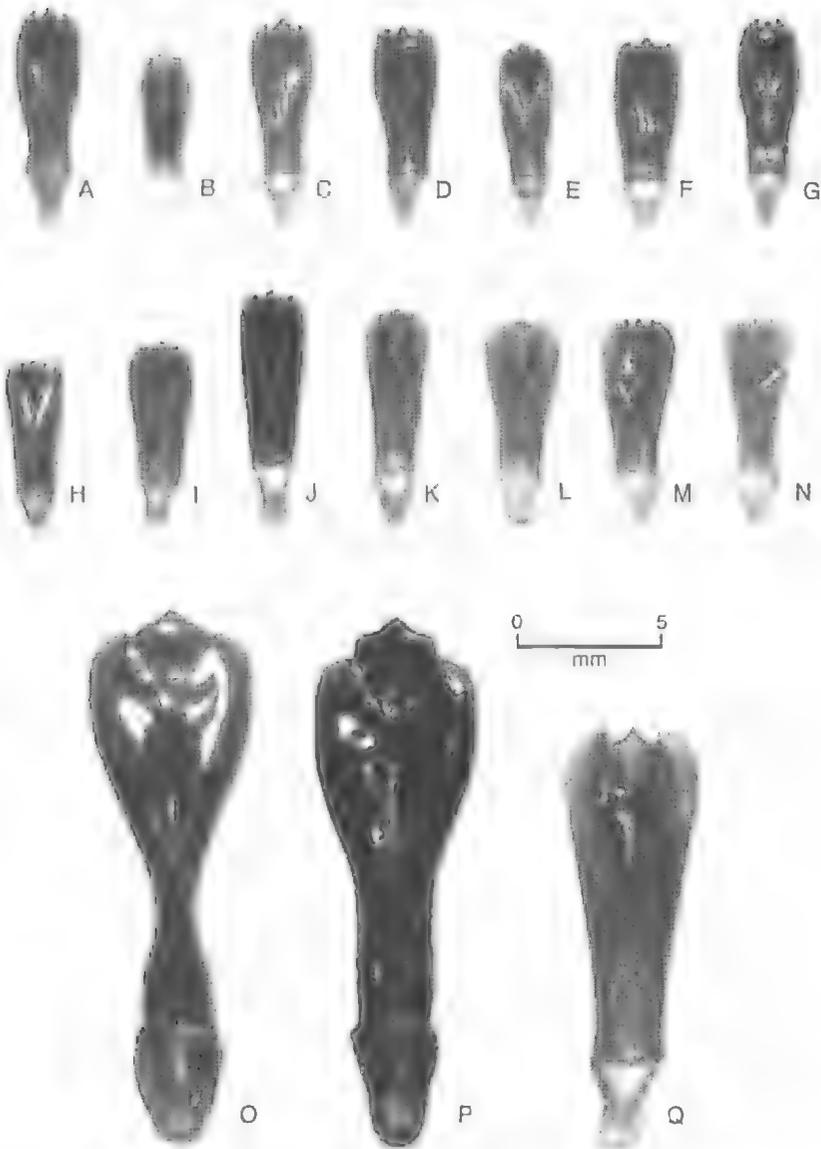


Fig. 1. Photomicrographs of male genitalia of *Castiarina* spp. A, *Castiarina galactica* sp.nov., B, *C. pallidiventris* (C & G), C, *C. creta* sp.nov., D, *C. aurantia* sp.nov., E, *C. diversa*, (Kerremans), F, *C. elderi* (Blackburn), G, *C. rediviva* sp.nov., H, *C. indigohumerosa* sp.nov., I, *C. atricollis* (Saunders), J, *C. palliata* sp.nov., K, *C. nota* sp.nov., L, *C. crux* (Saunders), M, *C. abdita* sp.nov., N, *C. distinguenda* (Saunders), O, *C. indigoventricosa* sp.nov., P, *C. jeanae* (Barker), Q, *C. daedalea* sp.nov.

fovea; apical margin projecting medially, basal margin almost straight; laterally angled inwards from base, then rounded from base to apex (widest medially) rounded to apex. Scutellum scutiform, without punctures, glabrous, flat. Elytra punctate-striate, intervals convex, punctured; laterally angled out from base, rounded at humeral callus, concave,

rounded posteromedially and narrowed to trispinose apex; small marginal spine, larger medial spine, small sutural spine, margin rounded between spines, apices hardly diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous, few short hairs. S₇: truncate both sexes, medially indented.

Size. Males, $11.0 \pm 0.10 \times 3.9 \pm 0.05$ mm (8).
Females, $12.0 \pm 0.21 \times 4.3 \pm 0.09$ mm (5).

Male genitalia. (Fig. 1F). Parameres diverging from basal piece, rounded posteromedially, parallel-sided, rounded to apex. Median lobe pointed, sides acutely angled away. Apophysis of basal piece medium width, flattened at apex.

Distribution: W.A.: Great Victoria Desert.

examined a series collected by Mr M. Powell on the flowers of *Wetilia* sp. from the southwestern edge of the Great Victoria Desert.

Castiarina diversa (Kerremans) 1900

FIGS 1E, 2B

Stigmodera diversa Kerremans, 1900: 317; 1903: 207.
Holotype. ♀, Australia, French, BMNH.

Colour. Head; blue, basally dark blue or bronze-green, yellow frontal spot. Antennae blue. Pronotum dark blue or bronze, laterally yellow. Scutellum dark blue. Elytra yellow with orange margin and following dark blue markings: narrow basal margin; pre-medial fascia not reaching margin, ends projecting and angled over humeral callus; post-medial fascia reaching margin; apical mark. Ventral surface yellow, sutures and edges of abdominal segments blue or green, S_4, S_5, S_6 with lateral blue spots on each side. Legs blue or green. Hairs silver.

Shape and sculpture. Head closely punctured, no median sulcus, very short muzzle. Antennae compressed, antennomeres: 1-3 obconic; 4 $\frac{1}{2}$ -toothed; 5-11 toothed. Pronotum closely punctured, small basal fovea; apical margin broadly projecting medially, basal margin bisinuate; laterally parallel-sided, then rounded to apex (widest medially). Scutellum scutiform, without punctures, glabrous, flat. Elytra punctate-striate, intervals convex, punctured; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially and narrowed to trispinose apex; sharp marginal spine, larger medial spine, smaller sutural spine, margin rounded between spines, apices hardly diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous, few short hairs. S_7 : male truncate; female, truncate, slightly indented medially.

Size. Males, 8.5 ± 0.19 mm \times 3.0 ± 0.07 mm (10).
Females, $8.8 \pm 0.24 \times 3.2 \pm 0.08$ mm (5).

Male genitalia. (Fig. 1E). Parameres slightly diverging from basal piece, rounded posteromedially, then more or less parallel-sided, rounded to apex. Median lobe blunt, sides angled away. Apophysis of basal piece medium width, narrowed, rounded at apex.

Distribution: W.A.: Wubin, Morowa, Yalgoo, Kalgoorlie, Mt Magnet, Norseman, Zanthus.

Remarks. Barker (1979, 1986) followed Carter (1916, 1929, 1931) and Obenberger (1934) in listing *C. diversa* (Kerremans) 1900 as a synonym of *C. elderi* (Blackburn) 1892. Comparison of the holotypes of *C. elderi* and *C. diversa* indicates that the two taxa are not conspecific. *C. diversa* (Fig. 2B) is smaller than *C. elderi* (Fig. 2A) and does not have the same

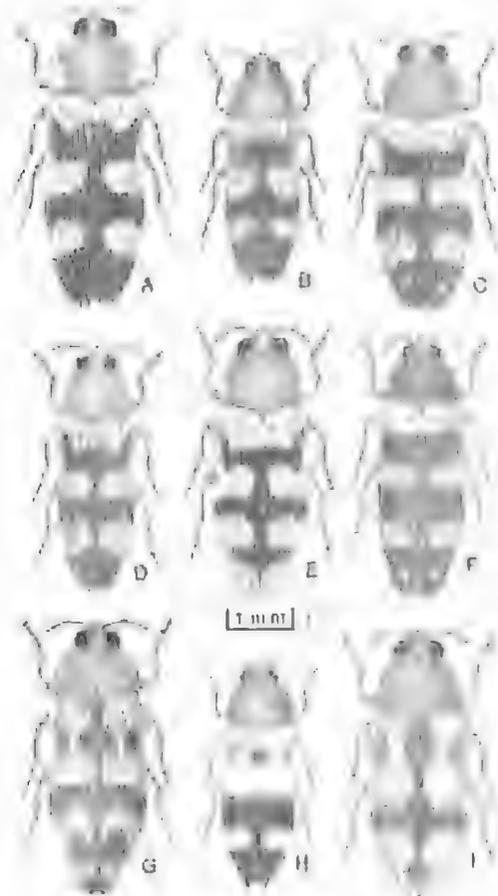


Fig. 2. Habitus illustrations of the following *Castiarina* species: A, *Castiarina elderi* (Blackburn), B, *C. diversa* (Kerremans), C, *Crediviva* sp. nov., D, *C. creta* sp. nov., E, *C. galactica* sp. nov., F, *C. aurantia* sp. nov., G, *C. abdita* sp. nov., H, *C. indigohumerosa* sp. nov., I, *C. nota* sp. nov.

Remarks. The type series in SAMA consists of: male holotype labelled Victoria Desert, Sept., Mr Helms, Type and is clearly the specimen described by Blackburn; 1 ♂ and 2 ♀♀ specimens labelled 'Kalgoorlie, Type,' which belong to another species described herein. The holotype was until recently the only specimen known of this species. I have

pattern on the pronotum. The elytra have a dark yellow margin, whereas *C. elderi* has pale yellow elytra. The male genitalia of *C. elderi* are broader than those of *C. diversu* (Figs 1E, 1F) and distributions of the two taxa differ. Thus I consider each a valid species. Adults have been collected on the flowers of *Leptospermum* sp. and *Eremophila* sp.

Castlarina creta sp. nov.

FIGS 1C, 2D

Holotype, ♂, 48 km NE Cowell, S.Aust., 14.x.1989, S. Barker, SAMA 1 21231.

Allotype, ♀, 10 km E 35 km post N Cowell, Whyalla Hwy, 1.x.1982, S. Barker, J. Gardner, H. Vanderwoude, SAMA 1 21232.

Paratypes, S.Aust.: 2 ♂♂, same data as allotype, SAMA; 1 ♂, 1 ♀, 53 km NE Cowell, 13.xi. 1974, S. Barker, SAMA.

Colour, Head bronze, pale yellow frontal spot. Antennae blue. Pronotum: medially bronze with yellow reflections; laterally pale yellow. Scutellum dark blue. Elytra pale yellow, lateral margin brown-orange with following dark blue markings: narrow basal margin; pre-medial fascia not reaching margin, ends angled anteriorly; broad post-medial fascia; apical spade-shaped mark reduced in some specimens to short pre-apical fascia not reaching margin and mark around spines or expanded in some specimens to mark covering whole apex. Fascia and apical mark connected along suture. Ventral surface pale yellow, sutures and edges of abdominal segments testaceous or blue. Legs blue. Hairs silver.

Shape and sculpture. Head closely punctured, small median sulcus, very short muzzle. Antennae compressed, antennomeres: 1-4 obconic; 5-11 toothed. Pronotum closely punctured, small basal fovea; apical margin projecting medially, basal margin barely bisinuate; laterally angled inwards from base, rounded to apex (widest medially). Scutellum scutiform, without punctures, glabrous, medially excavate. Elytra punctate-striate, intervals convex, punctured; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially and narrowed to trispinose apex; small marginal spine, larger median spine, small sutural spine, margin rounded between spines, apices hardly diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous, sparse short hair. S_2 : male truncate; female truncate, slightly indented medially.

Size. Males, $9.8 \pm 0.43 \times 3.4 \pm 0.20$ mm (4). Females, $10.0 \pm 0.62 \times 3.6 \pm 0.22$ mm (2).

Male genitalia, (Fig. 1C). Parameres parallel-sided from basal piece, rounded outwards medially, rounded to apex. Median lobe pointed, sides angled away. Apophysis of basal piece narrowed, rounded to apex.

Remarks. *C. creta* sp. nov. is closest to *C. elderi*, but differs in colour, distribution and structure of the male genitalia. All specimens have been collected on *Leptospermum coriacum* (F. Muell.) Cheel. Name derived from *creta* L. 'chalk'.

Castlarina aurantia sp. nov.

FIGS 1D, 2F

Holotype, ♂, Pindar Paddock, Tallering Stn, W.A., 21.ix.1989, S. Barker, WAMA.

Allotype, ♀, 10 km NE Mt Magnet, W.A., 20.ix.1980, S. Barker, D. J. Williams, WAMA.

Paratypes, W.A.: 5 ♂♂, 4 ♀♀, same data as allotype, SAMA, WAMA; 2 ♂♂, same data as holotype SAMA; 1 ♂, 1 ♀, 36 km W Sandstone, 20.ix.1985, M. Powell, MPWA; 2 ♂♂, Tallering Stn, 22/23.ix.1989, S. Barker, SAMA, 1 ♀, 77 km W Yalgoo, 22.ix.1980, G. G. Burns, GBVA; 1 ♂, 62 km NE Wubin, 7.x.1980, G. G. Burns, GBVA; 1 ♂, 42 km N Wubin, 11.x.1980, G. G. Burns, GBVA; 2 ♀♀, 46 km N Wubin, 11.x.1980, G. G. Burns, GBVA; 2 ♂♂, 48 km N Wubin, 11.x.1980, G. G. Burns, GBVA; 2 ♂♂, 2 ♀♀, 38.7 km N Wubin, 17.ix.1987, G. G. Burns, GBVA.

Colour. Head: apically blue; basally dark blue with elongate yellow frontal spot. Antennae blue. Pronotum: medially dark blue; laterally orange. Scutellum blue. Elytra orange with the following dark blue markings: narrow basal margin; pre-medial fascia not reaching margin, ends projecting anteriorly to humeral callus; post-medial fascia reaching margin; apical mark with two yellow spots in some specimens, reduced to short pre-apical fascia in one specimen. Fascia and apical mark connected along suture. Ventral surface deep orange, sutures testaceous or heavily marked dark blue. S_2 , S_3 , S_4 with lateral dark blue marks on each side. Legs blue. Hairs silver.

Shape and sculpture. Head closely punctured, very small median sulcus, very short muzzle. Antennae compressed, antennomeres: 1-3 obconic, 4 1/5 toothed; 5-11 toothed. Pronotum closely punctured, small basal fovea; apical margin projecting medially, basal margin barely bisinuate; laterally parallel-sided at base, rounded to widest posteromedially, narrowed to apex. Scutellum scutiform, without punctures, glabrous. H_1 . Elytra punctate-striate, intervals convex, punctured; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially, tapered then rounded to

trispinose apex; small marginal spine, larger medial spine, small sutural spine, margin rounded between spines, apices diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous, moderately hairy, hairs medium length. S_7 : male truncate; female truncate, slightly indented medially.

Size. Males, 10.4 ± 0.14 mm \times 3.7 ± 0.08 mm (18). Females, 10.6 ± 0.21 mm \times 3.7 ± 0.07 mm (10).

Male genitalia. (Fig. 1D). Parameres diverging from basal piece, rounded anteromedially, parallel-sided then rounded to apex. Median lobe pointed, sides acutely angled away. Apophysis of basal piece medium width, narrowed, rounded to apex.

Remarks. *C. aurantia* sp.nov. is closest to *C. elderi*. The adults of this species have been found associated with *Eremophila*, *Thryptomene* and *Scholtzia* species. Their colour in life separates them from *C. elderi*, but after death it fades rapidly to pale yellow. The name is derived from *aurantium* L. 'orange'.

Castiarina rediviva sp.nov.

FIGS 1G, 2C

Holotype. ♂, 4 km W Zanthus, W.A., 21.x.1989, M. Powell, WAMA.

Allotype. ♀; same data as holotype WAMA.

Paratypes. W.A.: 1 ♂, 3 ♀♀, same data as holotype, MPWA & SAMA; 1 ♂, 2 ♀♀, Kalgoorlie from type series of *C. elderi* Blackburn, SAMA, S.Aust.: 4 ♂♂, 4 ♀♀, 45 km E S.Aust./W.A. border, Eyre Hwy, 22.1.1987, A. Sundholm & J. Bugeja, ASSA & SAMA.

Colour. Head dark blue with purple reflections. Antennae blue. Pronotum dark blue with purple reflections. Scutellum blue. Elytra yellow with orange margin and following dark blue markings: narrow basal margin; pre-medial fascia not reaching margin, ends projecting over humeral callus; post-medial fascia reaching margin; apical mark (in six out of nine specimens enclosing a yellow spot on each side, in two solid, in one reduced to short fascia). Fascia and apical mark connected along suture. Ventral surface yellow with blue sutures and edges of abdominal segments S_1 , S_2 , S_3 with lateral blue spots on each side. Legs blue. Hairs silver.

Shape and sculpture. Head closely punctured, no median sulcus, very short muzzle. Antennae compressed, antennomeres: 1-4 obconic; 5-11 toothed. Pronotum closely punctured, small basal fovea extending forwards to middle as impressed line; apical margin projecting medially, basal margin barely bisinuate; laterally parallel-sided at base, rounded to apex. Scutellum scutiform, without punctures, glabrous, flat. Elytra punctate-striate,

intervals convex; punctured; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially and narrowed to trispinose apex; small marginal spine, larger medial spine, smaller sutural spine, margin rounded between spines, apices hardly diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous, hairs short. S_7 : male truncate; female truncate, slightly indented medially.

Size. Males, 10.7 ± 0.24 mm \times 3.9 ± 0.10 mm (7). Females, 11.5 ± 0.36 mm \times 4.1 ± 0.10 mm (10).

Male genitalia. (Fig. 1G). Parameres slightly diverging from basal piece, rounded posteromedially, parallel-sided, rounded to apex. Median lobe pointed, sides acutely angled away. Apophysis of basal piece medium width, narrowed, rounded to apex.

Remarks. *C. rediviva* sp.nov. is closest to *C. elderi*. It is a darker colour than *C. elderi*, but lacks the distinctive dark mark on the pronotum. Male genitalia are distinct, those of *C. rediviva* are narrower than those of *C. elderi* (Fig. 1F) and a different shape. Recently collected specimens were taken on *Eremophila* species. Name derived from *redivivum* L. 'renewed'.

Castiarina galactica sp.nov.

FIGS 1A, 2E

Holotype. ♂, Mon Repos, Mosman Park, W.A., 27.xi.1954, S. Barker, SAMA 1 21233.

Allotype. ♀, Mon Repos, Mosman Park, W.A., 12.xi.1957, S. Barker, SAMA 1 21234.

Paratypes. W.A.: 1 ♂, 2 ♀♀, Wannetu (sic), H. W. Brown, RMBB; 1 ♀, Swan River, Lea, SAMA, 1 ♂, Cataby, 27.xi.1977, M. Powell, MPWA.

Colour. Head bronze with green and purple reflections, large milky yellow frontal spot. Antennae green. Pronotum medially bronze with green and purple reflections, laterally milky yellow. Scutellum blue. Elytra milky yellow with following dark blue markings: narrow basal margin; pre-medial fascia not reaching margin, extending anteriorly at ends to humeral callus, extending anteriorly on suture; post-medial fascia reaching margin; pre-apical mark. Fascia and apical mark connected along suture. Ventral surface milky yellow with green-blue markings on sutures and edges of abdominal segments and green-blue lateral spot on each side of abdominal segments, S_1 , S_2 , S_3 . Legs green. Hairs silver.

Shape and sculpture. Head closely punctured, no median sulcus, short muzzle. Antennae, antennomeres: 1-3 obconic; 4 ½-toothed; 5-11 toothed. Pronotum closely punctured, basal fovea extending to apical margin as impressed line, basal

notches on each side more marginal than medial; apical margin projecting medially; basal margin bisinuate; laterally parallel-sided at base, rounded to widest part posteromedially, rounded and narrowed to apex. Scutellum scutiform, few punctures, glabrous, excavate. Elytra punctate-striate, intervals convex and punctured; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially and narrowed to trispinose apex; small marginal spine, wide blunt medial spine, very small sutural spine, margin rounded between spines, apices diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous, few short hairs. *S*₇: males truncate; females truncate and indented medially. *Size*. Males, $9.7 \pm 0.48 \times 3.5 \pm 0.23$ mm (4). Females, $11.0 \pm 0.20 \times 3.9 \pm 0.06$ mm (3).

Male genitalia. (Fig. 1A). Parameres parallel-sided basally, rounded posteromedially, parallel-sided, rounded apically. Median lobe sharp, sides acutely angled away. Apophysis of basal piece medium width, rounded apically.

Remarks. *C. galactica* sp.nov. is closest to *C. pallidiventris* (C & G) but differs in the structure of the male genitalia (Figs 1A, 1B) and in not having a red elytral margin. Adults are found on the flowers of *Melaleuca huegelli* R.Br. Name derived from *gala* Gr. 'milk'.

Castiarina abdita sp.nov.

FIGS 1M, 2G

Holotype, ♂, 30 km W Mullewa, W.A., 12.ix.1987; *M. Powell & Jones*, WAMA.

Allotype, ♀, 114 km S Billabong Roadhouse, Great Northern Hwy, 20.ix.1989, *S. Barker*, WAMA.

Paratypes. W.A.: 1 ♀, same data as holotype, MPWA; 1 ♀, 34 km S Billabong Roadhouse, 15.ix.1985, *M. Powell*, MPWA; 1 ♂, 2 ♀♀, Tenindewa, *H. W. Brown*, NMVA; 1 ♂, Carnarvon, *H. W. Brown*, NMVA.

Colour. Head grey-blue, muzzle blue. Antennae, antennomeres: 1-2 grey-blue; 3-11 bronze. Pronotum grey-blue medially; red laterally. Scutellum blue. Elytra red with the following blue markings: narrow basal margin; pre-medial fascia not reaching margin, ends expanded anteriorly over humeral callus on each side or represented by an elongate mark over each humeral callus and one on suture; post-medial fascia reaching margin, convex anteriorly; pre-apical mark; mark covering apex, all marks connected along suture. Ventral surface: prosternum mainly red, some sutures blue; meso and metasterna predominantly blue; abdominal segments red. Legs blue. Hairs silver. *Shape and sculpture*. Head closely punctured, broad

median sulcus, short muzzle. Antennae, antennomeres: 1-3 obconic; 4-11 toothed. Pronotum closely punctured, basal lobe extending anteriorly to middle as glabrous line; apical margin projecting medially, basal margin barely bisinuate; laterally angled inwards from base, rounded to widest part posteromedially, rounded and narrowed to apex. Scutellum scutiform, punctured, excavate. Elytra punctate-striate, intervals convex, punctured; laterally angled outwards from base, rounded at humeral callus, concave, rounded posteromedially and tapered, rounded to bispinose apex; blunt marginal spine, small blunt sutural spine, margin rounded and indented between spines, apices diverging, apical margin subserrate. Ventral surface with shallow punctures, edges of abdominal segments glabrous, moderately hairy, hairs short. *S*₇: males truncate; females rounded.

Male genitalia. (Fig. 1M). Parameres parallel-sided at base, diverging posteromedially, rounded to apex. Median lobe pointed, sides acutely angled away. Apophysis of basal piece narrow, rounded apically. *Size*. Males, $11.2 \pm 0.32 \times 4.2 \pm 0.11$ mm (4). Females, $12.8 \pm 0.22 \times 5.1 \pm 0.12$ mm (5).

Remarks. *C. abdita* sp.nov. has been confused with *C. distinguenda differens* (Carter). It is a larger species than *C. distinguenda*; male genitalia are broader apically (Fig. 1N), the dorsal surface is convex (flat in *C. distinguenda*) and the elytral markings are blue (black in *C. distinguenda*). Red coloration in *C. distinguenda* fades to yellow soon after death whereas it does not in *C. abdita*. Name derived from *abditus* L. 'hidden'.

Castiarina indigohumerosa sp.nov.

FIGS 1H, 2H

Holotype, ♂, Willaré, W.A., 24.v.1989, *H. Demarz*, WAMA.

Allotype, ♀, same data as holotype WAMA. *Paratypes*. W.A.: 3 ♂♂, 8 ♀♀, same data as holotype HDWA, SAMA; 4 ♂♂, Willaré, 21.v.1989, *H. Demarz*, HDWA; 1 ♂, 9 ♀♀, 10 km N Willaré, *H. Demarz*, 22.v.1989 HDWA; 1 ♀, Great Sandy Desert, 5.vi.1978, *P. M. Thomas*, SAMA; 1 ♂, Great Sandy Desert, Ridge Rd, Anketell, 11.v.1977, *A. S. George*, WADA.

Colour. Head blue, Antennae, antennomeres: 1-2 blue; 3-11 bronze. Pronotum and scutellum bright blue. Elytra yellow with the following dark blue markings: narrow basal margin; remnant pre-medial fascia represented by spot near each margin and larger spot on suture; broad post-medial fascia reaching margin; apical mark, the last two marks connected along suture. Ventral surface and legs blue. Hairs silver.

Shape and sculpture. Head closely punctured, median sulcus, very short muzzle, eyes bulbous. Antennae compressed, antennomeres: 1-3 obconic; 4-11 toothed. Pronotum closely punctured, small basal fovea extending to middle as impressed line; apical margin projecting medially, basal margin barely bisinuate; laterally parallel-sided at base, angled outwards, rounded to widest part anteromedially, rounded to apex. Scutellum scutiform, glabrous, flat. Elytra punctate-striate, intervals convex, punctured; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially and narrowed to bispinose apex; sharp marginal spine, small sharp sutural spine, margin rounded and indented between spines, apices diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous, sparse short hair. S.: males truncate and slightly indented medially; females truncate and indented medially.

Size: Males, $9.7 \pm 0.20 \times 3.3 \pm 0.08$ mm (11). Females, $10.7 \pm 0.16 \times 3.6 \pm 0.06$ mm (19).

Male genitalia. (Fig. 1H). Parameres slightly diverging from basal piece, widened medially, rounded to apex. Median lobe pointed, sides acutely angled away. Apophysis of basal piece medium width, rounded apically.

Remarks. *C. indigohumerosa* sp.nov. is closest to *C. atricollis* (Saunders) (Fig. 1I), but male genitalia are narrower apically in *C. indigohumerosa* and the median lobe is sharp (blunt in *C. atricollis*). The head, pronotum and ventral surface of *C. atricollis* are dark. The distributions of *C. indigohumerosa* and *C. atricollis* do not overlap. Name derived from *indigo* L. 'blue', *humerus* L. 'shoulder'.

Castiarina palliata sp.nov.

FIGS 1J, 4C

Holotype. ♂, Wilthorpe (mines), W.A., 6.x.1980, M. Powell, WAMA.

Allotype. ♀, same data as holotype, WAMA.

Paratypes. W.A.: 3 ♀♀, Port Samson, 2.ix.1967, F. H. Usher Baker, SAMA; 5 ♂♂, 5 ♀♀, same data as holotype, MPWA, SAMA; 1 ♂, 4 ♀♀, Fortescue Roadhouse, 23.viii.1987, M. Powell, MPWA; 2 ♂♂, 2 ♀♀, 132 km E Nanutarra, 29.vii.1988, MPWA.

Colour. Head dark blue. Antennae black with bronze reflections. Pronotum and scutellum black. Elytra orange with the following black markings: narrow basal margin; pre-medial fascia represented by a small spot on the suture and one on each elytron; post-medial fascia reaching margin, projecting anteriorly on suture and in middle of each elytron; mark covering apex in males, in most

females reduced to spade-shaped mark and around apical margin and spines. Fascia and apical mark connected along suture. Ventral surface dark blue. Legs dark blue, tips of tibia and tarsomeres with bronze-green reflections. Hairs silver.

Shape and sculpture. Head closely punctured, median sulcus, very short muzzle, eyes bulbous. Antennae compressed, antennomeres: 1-3 obconic; 4-11 toothed. Pronotum shallowly punctured laterally, sparsely punctured medially and slightly glabrous, basal notches represented by a glabrous area on each side more marginal than medial; apical margin projecting medially, basal margin bisinuate; laterally parallel-sided at base, rounded and narrowed to apex, widest anteromedially. Scutellum scutiform, punctured, glabrous, flat. Elytra punctate-striate, intervals convex, more so laterally and apically; laterally angled outwards from base,



Fig. 3. Habitus illustration of *Castiarina indigaventricosa* sp.nov.

rounded at humeral callus, concave, rounded posteromedially and narrowed to bispinose apex; large blunt marginal spine, very small sharp sutural spine, margin rounded and indented between spines, apices hardly diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous, sparse short hairs. S.: truncate in both sexes, slightly medially indented.

Size. Males, $11.9 \pm 0.19 \times 4.1 \pm 0.05$ mm (9). Females, $12.9 \pm 0.24 \times 4.5 \pm 0.10$ mm (15).

Male genitalia. (Fig. 1J). Parameres gradually diverging from base, rounded at apex. Median lobe pointed, sides acutely angled away. Basal piece medium width, rounded at apex.

Remarks. *C. palliata* sp.nov. is closest to *C. atricollis*. The pronotum, scutellum and elytral markings in *C. palliata* are black (dark blue in *C. atricollis*). Male genitalia differ (Figs 11, 1J), those in *C. atricollis* being shorter and wider. The elytral colouring fades to pale yellow soon after death. The name is derived from *pallians* L. 'cloaked'.

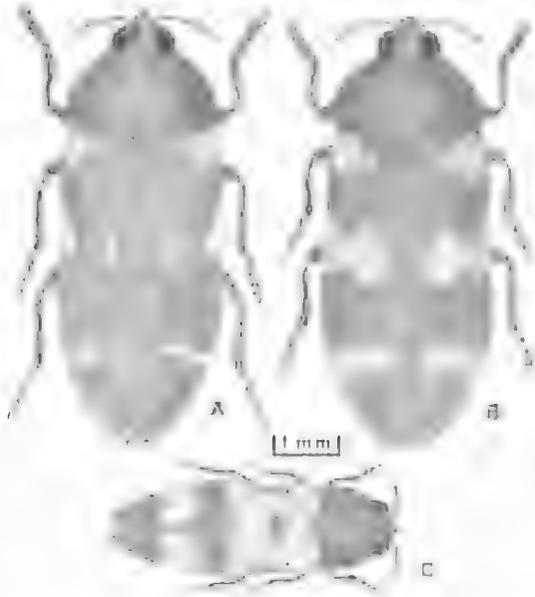


Fig. 4. Habitus illustrations of the following *Castiarina* species: A, *Castiarina daedalea* sp.nov. male, B, *C. daedalea* sp.nov. female, C, *C. palliata* sp.nov.

Castiarina nota sp.nov.
FIGS 1K, 2I

Holotype. ♂, 46 km SW Whyalla, S.Aust., 14.x.1989, S. Barker, SAMA I 21235.

Paratypes. S. Aust.: 3 ♂♂, 56 km E Kimba, 16.xi.1979, G. Harold, MHS & ASSA; 1 ♂, 50 km NE Cowell, 1.x.1982, S. Barker, SAMA; 1 ♂, 22 km E Kimba, 26.x.1982, S. Barker, SAMA; 1 ♂, 40 km NE Cowell, 14.x.1989, S. Barker; 1 ♂, Scrubby Peak, Gawler Ra., 4.xi.1989, S. Barker, SAMA; 1 ♂, Pinkawillinie C.P., 2.xi.1989, J. Bujega & A. Sundholm, ASSA.

Colour. Head bronze, muzzle blue. Antennae, antennomeres: 1-2 blue; 3-11 bronze. Pronotum bronze. Scutellum blue. Elytra orange with the following dark blue markings; narrow basal margin; elongate mark over each humeral callus; post-medial fascia usually reaching margin; pre-apical spade-shaped mark; mark along suture from scutellum to apices. All marks connected along suture. Ventral surface bronze. Legs; femora and

tibia blue; tarsomeres bronze-green. Hairs silver. **Shape and sculpture.** Head closely punctured, median sulcus, short muzzle. Antennae, antennomeres: 1-3 obconic; 4-11 toothed. Pronotum closely punctured, minute basal fovea extending forwards to middle as glabrous line; apical margin straight, basal margin bisinuate; laterally rounded from base to apex, widest posteromedially. Scutellum scutiform, glabrous, flat. Elytra punctate-striate, intervals convex more so laterally and apically than elsewhere, lightly punctured; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially and narrowed to bispinose apex; small sharp marginal spine, minute sutural spine, margin rounded and indented between spines, apices hardly diverging, apical margin subserrate. Ventral surface with shallow punctures, edges of abdominal segments glabrous, hairy, hairs medium length. S.: male truncate and slightly indented medially; female unknown.

Size. Males, $11.6 \pm 0.25 \times 4.4 \pm 0.13$ mm (9). **Male genitalia.** (Fig. 1K). Parameres diverging from basal piece, rounded to apex. Median lobe pointed, sides obtusely angled away. Apophysis of basal piece medium width, rounded apically.

Remarks. *C. nota* sp.nov. is closest to *C. crux* (Saunders). Male genitalia are narrower than in *C. crux* (Fig. 1L) in which the parameres are widened medially and broader apically. *C. crux* has blue markings on the elytra and is found in the Little Desert, Vic., whereas *C. nota* has dark blue markings and occurs on the Upper and Lower Eyre Peninsula, S.Aust. Named derived from *nota* L. 'mark or sign.'

Castiarina indigoventricosu sp.nov.
FIGS 10, 3

Holotype ♂, Currarong, N.S.W., 3.i.1990, T. M. S. Hanton, SAMA I 21236.

Allotype. ♀, same data as holotype, SAMA I 21237. **Paratypes.** N.S.W.: 11 ♂♂, 5 ♀♀, same data as holotype; 3 ♂♂, 4 ♀♀, Currarong, 15.i.1990, R. Mayo, RMNA; 6 ♂♂, 7 ♀♀, Currarong, 6.i.1990, A. Sundholm, ASSA.

Colour. Head blue. Antennae bronze. Pronotum, scutellum, ventral surface and legs blue. Elytra pale brown medially, yellow laterally with the following black markings; narrow basal margin; very narrow sutural margin; spines. Hairs silver.

Shape and sculpture. Head shallowly punctured, broad median sulcus, short muzzle. Antennae, antennomeres: 1-3 obconic; 4-11 toothed. Pronotum shallowly punctured, basal fovea extending to middle as glabrous line, basal notches

more marginal than medial; apical margin projecting medially, basal margin bisinuate; laterally parallel-sided at base, angled outwards, rounded to widest before middle, tapered to apex, dorso-ventrally flattened from base to middle. Scutellum scutiform, glabrous flat. Elytra punctate-striate, intervals convex and smooth; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially and narrowed to bispinose apex; long sharp marginal spine, smaller sutural spine, margin rounded and indented between, apices diverging. Ventral surface with shallow punctures, edges of abdominal segments glabrous, moderately hairy, hairs medium length. S₁: males truncate; females truncate, medially indented.

Size. Males, $19.6 \pm 0.25 \times 7.5 \pm 0.11$ mm (21). Females, $20.7 \pm 0.35 \times 8.1 \pm 0.14$ mm (17).

Male genitalia. (Fig 10). Heavily chitinized. Parameres parallel-sided from basal piece, pinched in, rounded premedially then parallel-sided, rounded to apex. Median lobe pointed, sides obtusely angled away. Apophysis of basal piece broad, apically rounded.

Remarks. *C. indigoventricosa* sp.nov. is closest to *C. jeanae* (Barker), but the colour of the head, pronotum and ventral surface is blue whereas it is usually green in *C. jeanae*; *C. indigoventricosa* occurs in coastal mallee heath in N.S.W. whereas *C. jeanae* is found in high altitude further inland. Male genitalia also differ (Figs 10, 1P) the parameres being broader medially in *C. jeanae*. The name is derived from *Indigo* L. 'blue'; *venter* L. 'belly'.

Castiarina daedalea sp.nov.

FIGS 1Q, 4A, 4B

Holotype. ♂, Currarong, N.S.W., 6.i.1990, A. Sundholm, SAMA 21238.

Allotype. ♀, Currarong, N.S.W., 29.xii.1989, S. Lamond, SAMA 21239.

Paratype. N.S.W.: ♀, Currarong, 3.i.1990, T. M. S. Hanton, MHSA.

Colour. Head, antennae, pronotum, grey-blue. Scutellum dark blue. Elytra red with the following dark blue markings: Female with basal margin narrow laterally, broad medially; broad pre-medial fascia reaching margin; broad post-medial fascia reaching margin; mark covering whole apex, all marks connected along suture. Male; the fascia are

coalesced leaving two red spots on the lateral margin and one medial but not touching suture and a narrow red pre-apical fascia. Ventral surface and legs dark blue. Hairs silver.

Shape and sculpture. Head closely punctured, median sulcus, muzzle medium length. Antennae, antennomeres: 1-3 obconic; 4-11 toothed. Pronotum closely punctured, basal fovea extending forwards to middle as glabrous line; apical margin projecting medially, basal margin barely bisinuate; laterally parallel-sided at base, rounded, widest posteromedially, tapered to apex; dorso-ventrally flattened from base to middle. Scutellum scutiform, glabrous, excavate. Elytra punctate-striate, intervals flat medially, convex basally, smooth; laterally angled out from base, rounded at humeral callus, concave, rounded posteromedially to bispinose apex; small marginal spine, small sutural spine, margin rounded and indented between, apices diverging, apical margin subseriate. Ventral surface with shallow punctures, edges of abdominal segments glabrous, moderately hairy, hairs long. S₁: truncate both sexes.

Size. Male, 17.7×7.0 mm (1). Females, $17.4 \pm 0.58 \times 7.1 \pm 0.21$ mm (2).

Male genitalia. (Fig. 1Q). Parameres parallel-sided at base, gradually widened posteromedially, rounded at apex. Median lobe pointed, sides obtusely angled away. Apophysis of basal piece medium width, rounded at apex.

Remarks. *C. daedalea* sp.nov. does not closely resemble any other described species. The name is derived from *daedalus* L. 'skillfully made in the manner of Daedalus, the Athenian artificer.'

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